

Remarks

Amendments to the Specification

The specification is objected to because of embedded hyperlinks directed to an Internet address. Three paragraphs of the specification have been amended to remove references to Internet addresses. Applicants respectfully request that the objection to the specification be withdrawn.

Amendment to the Information Disclosure Statement (IDS)

The Office action states that reference number 1 on page 2 of the IDS form 1449 submitted on January 24, 2005, includes a hyperlink and suggests that the hyperlink be deleted. Applicants note that the Examiner has deleted the reference to the hyperlink and believe that the IDS as amended by the Examiner conforms to current United States Patent and Trademark Office policy. Applicants request that the Examiner contact their representatives if a replacement amended copy of page 2 of the subject IDS is required.

Amendments to the Claims

Claims 1-10 were pending in this application. Claims 4 and 8-10 are currently withdrawn. Claims 1 and 3-7 have been amended. Claims 1 and 5 have been amended to recite that the PRDT1 polypeptide comprises an amino acid sequence as set forth as SEQ ID NO: 2; an amino acid sequence having at least 95% sequence identity to the amino acid sequence of SEQ ID NO:2; or an ortholog of SEQ ID NO:2, wherein the ortholog has at least 60% sequence identity over the entire length of SEQ ID NO: 2, comprises a SANT domain, and has DNA-binding activity. Support for these amendments may be found throughout the specification, for example, in paragraphs [0015], [0019], [0020], and [0058]. Claim 4 has been amended to recite that the transgenic plant comprises a plant transformation vector comprising a nucleotide sequence which encodes an ortholog of SEQ ID NO:2, wherein the ortholog comprises an amino acid sequence selected from any one of SEQ ID NOs:3-17. Support for this amendment may be found throughout the specification, for example, in paragraph [0004]. Claims 6 and 7 have been amended to recite that the plant or plant part is transformed. Support for this amendment may be found throughout the specification, for example, in paragraph [0011]. Claim 8 has been

amended to depend from claim 1. Support for this amendment may be found throughout the specification, for example in paragraphs [0042] and [0043].

New claim 11 has been added, directed to a transgenic plant comprising the nucleotide sequence of SEQ ID NO: 1. Support for this new claim may be found throughout the specification, for example, in paragraph [0021].

New claim 12 has been added, directed to a transgenic plant having a DNA binding domain that specifically recognizes the nucleic acid sequence YAAC(G/T)G. Support for this new claim may be found throughout the specification, for example, in paragraphs [0057] and [0058].

No new matter is introduced by the foregoing amendments or the new claims. After entry of this amendment, **claims 1-12 are pending in this application (of which claims 4 and 8-10 are withdrawn)**. Consideration of the pending claims is requested.

Declaration

Applicants submit herewith a Declaration Under 37 CFR §1.132 (“Declaration”) and accompanying Exhibits A-F. The Declaration is submitted to provide supplemental data related to the pathogen resistance and drought tolerance phenotypes of orthologs of the PRDT1 polypeptide (SEQ ID NO:2).

Claim Objections

Claim 4 has been objected to because the Office action states that “a transgenic plant cannot encode.” Claim 4 has been amended to recite that the transgenic plant comprises “a plant transformation vector comprising a nucleotide sequence which encodes a PRDT1 polypeptide comprising the amino acid sequence selected from any one of SEQ ID NOs:3-17.”

Claim 6 has been objected to for reciting a “plant” instead of a “transformed plant.” Claim 6 has been amended, as suggested by the Examiner, to recite a “transformed plant.”

Claims 6 and 7 have been objected to for not reciting “the” when referring to a previous claim. These claims have been amended, as suggested by the Examiner.

Applicants respectfully submit that in light of the amendment to claims 4, 6, and 7, the objections to these claims should be withdrawn.

Rejections Under 35 U.S.C. §112, second paragraph:

Claims 1-3 and 5-7 are rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Applicants respectfully traverse this rejection.

The Office action states that claims 1 and 5 are indefinite because a nucleotide sequence that is complementary to an encoding nucleotide sequence cannot encode a polypeptide. While Applicants agree that this statement is true, at least with regard to the coding and non-coding strands of a gene, they do not agree that this renders the claim unclear. One of skill in the art would understand that either the nucleotide sequence that directly encodes the polypeptide sequence or its complement may be present in a vector, particularly because in double-stranded DNA vectors, both of them are present, thereby enabling expression of the polypeptide, either directly from the coding strand or indirectly through the complementary strand. However, solely to advance prosecution in this case, Applicants have amended claims 1 and 5 to remove the phrase “or is complementary to a sequence that encodes.” Based on the above amendment, Applicants respectfully submit that claims 1-3 and 5-7 are clear and definite, and request that this rejection be withdrawn.

Rejections Under 35 U.S.C. §101

Claim 7 was rejected under 35 U.S.C. §101, as allegedly the claim was not directed towards statutory subject matter. Applicants respectfully traverse this rejection.

The Office action states that as the claim does not recite “transformed plant part,” the claim reads on a product of nature. Claim 7 has been amended as suggested by the Examiner to

recite “transformed plant part.” Applicants respectfully submit that, in light of the amendment to claim 7, this rejection should be withdrawn.

Rejections Under 35 U.S.C. §112, first paragraph:

Claims 1-3 and 5-7 were rejected under 35 U.S.C. §112, first paragraph, as allegedly containing subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Applicants respectfully traverse this rejection.

The Office action states that the claimed transgenic plants comprising orthologs of SEQ ID NO: 2, and the claimed method that employs a nucleic acid encoding an ortholog of SEQ ID NO: 2, are not adequately described in sufficient detail to allow one of skill in the art to understand that Applicants were in possession of the invention at the time the application was filed. In addition, page 6 of the Office action states that “Applicant has not described specific chemical, physical, or any other relevant identifying characteristics that distinguish a nucleic acid encoding a PRDT1 polypeptide from other polypeptides associated with genes that confer resistance against fungal diseases.” The Office action further states that the “specification fails to describe structural features common to all nucleic acids encoding a PRDT1 polypeptide that would allow a skilled artisan to predictably determine what will be the identity of the members of the genus.” Applicants respectfully disagree for the following reasons:

- Applicants submit that the term “ortholog” is adequately described in the specification (see, for example, the specification at paragraph [0025]).
- Claims 1 and 5 are now directed to a PRDT1 polypeptide comprising “an amino acid sequence having at least 95% sequence identity to the amino acid sequence of SEQ ID NO: 2” or orthologs having “at least 60% sequence identity over the entire length of SEQ ID NO:2.” At least this language clearly and structurally describes the molecules that fall within the claimed subject matter. As further evidence that Applicants had possession of the claimed invention, Applicants submit herewith a Declaration and Exhibits A-F, that

provide supplemental pathogen-resistance and drought-tolerance data directed to certain orthologs of SEQ ID NO: 2, as well as SEQ ID NO: 2 itself. The orthologs described in the Declaration are all greater (some significantly greater) than 60% identical to SEQ ID NO: 2.

- The specification at paragraph [0015] clearly describes that functionally active orthologs of the PRDT1 polypeptide (SEQ ID NO: 2) cause (i) “an altered pathogen resistance and drought tolerance phenotype when mis-expressed in a plant. . . increased resistance to *P. parasitica* and/or other oomycetes and increased drought tolerance,” (ii) are “capable of rescuing defective (including deficient) endogenous PRDT1 activity when expressed in a plant or in plant cells,” and (iii) that “Some preferred PRDT1 polypeptides display DNA binding activity.” Thus, the specification clearly describes “chemical, physical, or any other relevant identifying characteristics” that relate to orthologs of the PRDT1 polypeptide.
- The specification states that the PRDT1 polypeptides include “a SANT DNA-binding domain at approximately amino acids 8-60” (paragraph [0057]) and that members of the “SANT domain family specifically recognize the sequence YAAC(G/T)G (Aasland et al. 1996, Trends Biochem. Sci. 21:87-88)” (paragraph [0058]).
- The specification at paragraph [0057] also teaches that functional domains of the PRDT1 polypeptide (such as a SANT domain) can be identified using algorithms well known to those of skill in the art (such as the PFAM program). Moreover, the SANT domain was well-known to those of skill in the art at the time the application was filed (see, for example, Aasland *et al.* 1996, *Trends Biochem. Sci.* 21:87-88; Exhibit G).

Thus, contrary to the assertions in the Office action, the specification clearly describes structural features that would be common to all PRDT1 polypeptides and orthologs thereof (and the nucleic acid sequences encoding them) and how to identify them.

Further, claims 1 and 5 have been amended to recite that the currently claimed PRDT1 polypeptides comprise:

- “a) the amino acid sequence set forth as SEQ ID NO:2;
- b) an amino acid sequence having at least 95% sequence identity to the amino acid sequence of SEQ ID NO:2; or
- c) an ortholog of SEQ ID NO:2, wherein the ortholog has at least 60% sequence identity over the entire length of SEQ ID NO:2, comprises a SANT domain, and has DNA-binding activity.”

Applicants submit that the specification certainly provides an adequate written description for the current claimed invention and clearly describes structural features common to all nucleic acids encoding a PRDT1 polypeptide encompassed by the current claims. The provided written description would allow a skilled artisan to predictably determine what would be the identity of the members of the claimed genus. Applicants respectfully submit that one of skill in the art reading the specification would recognize that Applicants had possession of the claimed invention in its full scope at the time the application was filed. Applicants respectfully request that the rejection of claims 1-3 and 5-7 for lack of adequate written description be withdrawn.

Rejections Under 35 U.S.C. §102(b)

Claims 1-3 and 5-7 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Jones *et al.* (WO 96/31608). Applicants respectfully traverse this rejection.

Jones *et al.* teaches a transgenic plant comprising a plant transformation vector comprising a promoter operably linked to a nucleotide sequence encoding a polypeptide, designated as RPP5, which allegedly confers resistance to *Peronospora parasitica*; and a method of transforming a plant with said vector for the production of transgenic plants having increased stress tolerance. The Office action states that because the polypeptide is from *Arabidopsis* and has pathogen resistance activity, it is considered an ortholog of SEQ ID NO:2, absent evidence to the contrary.

RPP5 includes the following “regions” according to the NCBI protein database (Exhibit H): (i) a Toll-interleukin 1-resistance domain, (ii) an ABC-type uncharacterized transport system, (iii) an AAA-superfamily of ATPases associated with a wide variety of cellular activities, including membrane fusion, proteolysis, and DNA replication, and (iv) a leucine-rich repeat domain. RPP5 does not include a SANT domain, as required by the current claims. In contrast, PRDT1 polypeptide is a myb-related DNA-binding protein (see paragraph [0057]). An alignment using the NCBI Blast program determined that there is no significant sequence similarity between the PRDT1 and RPP5 polypeptides (Exhibit I). Applicants conclude that the RPP5 sequence in Jones *et al.* (SEQ ID NO: 2) is not a PRDT1 polypeptide or ortholog having a SANT domain. Thus, the claims (even without the current amendment) are not anticipated by Jones *et al.* Applicants respectfully submit that the rejection of claims 1-3 and 5-7 under 35 U.S.C. §102(b), particularly as amended, should be withdrawn.

Conclusion

Based on the foregoing amendments and arguments, the claims are in condition for allowance and notification to this effect is requested. If for any reason the Examiner believes that a telephone conference would expedite allowance of the claims, please telephone the undersigned at the telephone number listed below.

Respectfully submitted,

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